Math 212
Requiz 03A

F 21 Oct 2016 / N 23 Oct 2016

Your name: _____

Exercise 1

(3 pt) Consider the point $P = (-1, 1, \sqrt{6})$, given in rectangular coordinates (x, y, z), in $\mathbf{R}^3$.

(a) (1.5 pt) Write P in cylindrical coordinates (r, θ, z).

(b) (1.5 pt) Write P in spherical coordinates (ρ, θ, φ).

Exercise 2

(2 pt) Let

$$\mathbf{u} = (-3, 0, 2), \qquad \mathbf{v} = (4, -2, 6), \qquad \mathbf{w} = (-2, 1, -3)$$

be vectors in $\mathbf{R}^3$.

(a) (1 pt) Are $\mathbf{u}$ and $\mathbf{v}$ orthogonal (i.e. perpendicular)? Justify.

(b) (1 pt) Are $\mathbf{v}$ and $\mathbf{w}$ parallel? Justify.